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THE ROLE OF ACCOUNTING PRACTICES IN A RADICAL CHANGE PROCESS: TOWARDS A COMPREHENSIVE CHANGE FRAMEWORK

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SOM-theme E Financial markets and institutions

Abstract

This paper is concerned with investigating the role of accounting practices in radical change processes. The institutional framework has been taken as a starting point in investigating these processes. The research has been carried out at the Dutch Railways. This company was forced by the Dutch government to change from a public company into a private company. This decision by the Dutch Government has had radical consequences for Dutch Railways' position in the (rail) transport market and for the way of managing the company. The research focuses on the processes in which the company has changed its template as a public company into a profit-oriented template. This paper examines the interaction of accounting practices with the environmental and organisational context. Emphasis is placed on how these mutual processes of interaction change internal and external positioning, create new visibilities, transform perspectives on organisational activities and performance and modify conditions for organisational change. Existing institutional concepts regarding change processes are evaluated in the light of the case findings and building blocks are developed for a comprehensive change framework.

Keywords: radical change processes; accounting practices; environmental and organisational context; change framework; longitudinal case study

1. Introduction

Continuous changes in organisations' environment have made organisational change an important research issue. Many accounting scholars have investigated how organisations have adopted and implemented new accounting instruments (see *e.g.* Anderson, 1995; Shields, 1995; Bjørnenak, 1997; Vaivio, 1999; Malmi, 1999). Other scholars (see *e.g.* Burns & Scapens, 2000) focus their research on the problems organisations struggle with in making changes. They explain the processes of resistance to change. In these studies the adoption of a new accounting instrument is seen as the originator of change processes through which the instrument is implemented. This study will take a different perspective. It does not see accounting instruments as the originator of change processes, but as a means to contribute to and shape change processes an organisation has to go through due to institutional pressures from outside. The study is focused on the role accounting instruments can play in realising radical changes and in the demands made on the development and use of these instruments in order to be able to play such a role. Various authors (see *e.g.* Dent, 1991; Hopwood, 1987; Miller & O'Leary, 1987; Ogden, 1995, 1997) have stressed the pro-active capacity of accounting in changing organisational priorities and legitimating new organisational purposes, structures and practices.

This study investigates the processes of developing accounting practices that function as a means to transform a public company into a profit-oriented company. The institutional framework has been taken as a starting point in investigating changes in accounting practices. As Macintosh & Scapens (1990) argue, accounting practices provide an interpretive scheme for making sense of organisational activities. Accounting practices as institutionalised routines further organisational coherence and create stability and social order within an uncertain world. They also give external legitimacy to the organisational activities and the way of organising them. Accounting practices are influenced by the institutional environment and by the knowledge and experience of the people involved in the organisational activities. As the institutional environment is subject to changes and people are learning by doing accounting practices will evolve in the course of time. Evolution of practices means that they cannot be seen in isolation from the past. Evolution is the reproduction of behaviours through time (Nelson & Winter, 1982).

Even when radical changes are at stake past behaviours are not thrown overboard completely. Heiner (1983) concludes that the greater the level of uncertainty the more likely rule-based behaviour. In order to create stability in an uncertain situation people will try to stick to routines which have proven to be effective till now. However, when they feel that past practices are no longer suitable for the new situation, they are forced to create new routines. In particular, when the change is induced by the institutional environment, *e.g.* new regulations by the government,

changes in the market position leading to customers changing their preferences, or new technology with far-reaching consequences for the product features and the production processes, people within the organisation are forced to change their behaviour radically, otherwise the continuity of the organisational activities will be threatened. Another related issue regards the pace at which a radical change will be achieved. Combining insights from the old and the new institutionalism Greenwood & Hinings (1996) have developed a model for understanding organisational change which is able to explain the orientation and the pace of change.

In the early nineties the government decided to change the position of the Dutch Railways. The Dutch Railways used to be a public organisation. As in other West European countries the effectiveness and efficiency of public companies became a matter of discussion for the Dutch government. The idea was that the market would be a more effective and efficient governance structure than the public structure. So, the government decided to change the position of the Dutch Railways into a private profit-oriented company which should be exposed to market forces. This paper investigates what changes the Dutch Railways have made and are still making in order to become a profit-oriented company and to be able to compete with other (rail) transport companies.

The transformation from a public company into a private company has radical consequences for Dutch Railways' position in the market and for the way in which the company is managed. Issues that were irrelevant before the change need special attention now and appear on the agenda. Different kinds of information are required. The company needs knowledge and experience in functional areas not covered till now. Radical changes require radical answers. As the company has to make a new start the existing routines and habits have little value. New organisational institutions need to be created and new accounting practices put into place in order to ensure appropriate behaviour and organisational coherence. As the ties with the past must be broken we may expect that new organisational and accounting techniques will come to the fore. Being forced to introduce radical changes throughout the whole company with consequences for a broad array of activities and for all functional areas leads to decisions the consequences of which cannot be foreseen completely. This means that decision-makers will be confronted with unintended effects and counterproductive consequences. In such complicated situations decision-makers should be enabled to learn from their decisions. Decisions must be open to reconsideration or withdrawal. As Briers & Chua (1999) conclude the 'facts' of changes are clear in hindsight, but they are not so certain in the making. Furthermore, the written and tacit knowledge and experience in the company have to be mobilised for such far-reaching decisions. Without the commitment of all people in the company such radical changes cannot be made. These changes require several interconnected forces. As Vaivio (1999) argues radical changes are associated with an intended and systematic organisational

initiative in order to integrate them in the management process and to turn them into 'organizationally constitutive artifacts' (p. 429).

In studying the processes of developing accounting practices that support the radical change the Dutch Railways has to make, this research focuses in particular on the following questions. First, which changes have been made in the organisational structure, the external and internal positioning of organisational units and accounting practices? Related to this, how systematically have these changes been developed and implemented and what has been the role of accounting practices in realising the radical change? Second, who are involved in developing and implementing these changes and what are the influences from the institutional environment on the choices which have been made? Who have delivered the required knowledge and experience for making the change and for managing the 'new' organisation? Third, how has the company dealt with not being able to foresee all the consequences of the changes beforehand due to bounded rationality arguments? How has the company learned from the effects of decisions and how have learning processes effected the pace of change? Fourth, what is the ability of existing change frameworks to understand the complexity of radical change processes and the diversity and intertwinement of the mobilising factors?

The radical change, which the Dutch Railways has had to go through, has consequences for the whole organisational context and its position in the environment. It influences its relation, not only with the government, but also with both internal and external customers. The company has to work in another competitive environment and to face new competitors. It has to re-determine its position in the market, and these changes in its environmental position have to be taken into account when deciding on new accounting practices. These practices should enable the company to make changes in its environmental position and, related to this, in the organisational units' position within the company. Therefore, in studying change processes emphasis is placed on the organisational embeddedness of accounting practices and on their interaction with the institutional environment.

The paper is structured as follows. In section 2 theoretical concepts will be discussed which give an insight into radical change processes by explaining the factors that play a role in such processes and influence the adoption, development and use of accounting practices. In section 3 the research method will be described and information will be given about the activities and organisational structure of the Dutch Railways and specifically about the business unit NedTrain, where the case research was carried out. Sections 4 and 5 will describe the case research results. In section 4 the paper will focus on changes in the organisational structure and the internal and external positioning of NedTrain. Section 5 will investigate the role that accounting practices have played in supporting changes in the framework of accountability and in organisational reality. In section 6 the change patterns which

were observed at NedTrain will be discussed. These patterns will be compared with the theoretical concepts and conclusions will be drawn about their contributions to understanding radical change processes. Based on this comparison the building blocks of a comprehensive change framework will be identified and discussed. The paper will be rounded off by some concluding remarks.

2. Theoretical change concepts

Greenwood & Hinings (1996) distinguish radical change versus convergent change, on the one hand, and revolutionary versus evolutionary change, on the other. The first distinction refers to the type of change, while the second distinction involves the pace and extent of the change processes. They describe radical change as ‘the busting loose from an existing “orientation” and the transformation of an organisation’ (p. 1024). Convergent change is ‘fine tuning the existing orientation’ (p. 1024). Making radical changes can take place in a revolutionary way, i.e. these changes are made swiftly and regard the whole organisation. Radical changes can also be made slowly and affect only specific parts or processes of the organisation; then the changes are evolutionary.

Institutional theory assumes that organisational behaviours are influenced by ideas, values and beliefs, which come from the institutional context. The institutional context includes pressures from the market the organisation is exposed to, pressures from regulatory bodies, such as national and international governmental bodies and professional agencies, and pressures from general social expectations and from leading organisations. Part of these pressures are general in the sense that all organisations are exposed to these pressures, while others are more specific and influence only some organisations. In order to gain legitimacy and to increase their probability of survival organisations have to conform to the institutional pressures. That is why institutional theorists (DiMaggio & Powell, 1991; Hopwood, 1987; Meyer & Rowan, 1977; Zucker, 1983) observe that organisations adopt the same organisational form or, as formulated by DiMaggio & Powell (1991), ‘template for organizing’ (p. 27). The term ‘template for organizing’ refers to a particular configuration or pattern of an organisation’s structures and systems based on ideas, beliefs and values. When an organisation moves from one template (or archetype) – the template-in-use - into another, it goes through a radical change process, ‘because it represents the breaking of the mold defined by an interpretive scheme’ (Greenwood & Hinings, 1996, p. 1026). But, thinking in terms of templates, and seeing mimetic, normative and coercive pressures as part of the institutional context, we may expect convergence around templates leading to stability, rather than radical change and instability.

Greenwood & Hinings (1996) have developed a model which provides an explanation of the character of change and of the pace and scale of change processes. They question why organisations make radical changes, when convergence around templates and stability are more likely. Organisations which are strongly embedded in their organisational context – are tightly coupled to a prevailing archetype – will face a higher degree of instability when they are exposed to external shocks. Greenwood & Hinings assume that the changes these organisations face will be of a radical nature and will take place in a revolutionary way (see also DiMaggio & Powell, 1991). In particular, changes in mature organisational fields (such as accounting, law and the public sector), which are tightly coupled and which are exposed to high pressures for conformity, will be radical. Tightly coupled fields are less open to alternative organisational forms, as the orientation of these fields has a strong internal focus.

In the case of the Dutch Railways the organisation was forced by the Dutch government to change its template-in-use. The Dutch Railways had a long tradition as a public organisation, so turning its traditional template into a template of a profit oriented organisation involves a radical change which affects the whole company. The Dutch Railways used to have a protected position without any competition in the Dutch market for rail transport. The company operated in a tightly coupled field with a strong internal focus. Due to its secure position it was less open to alternative organisational forms. The government not only forced the company to make a radical change, but also indicated the period within which this change should be made. The change had to be completed within five years, which is a rather short period for such a comprehensive change.

Greenwood & Hinings (1996) argue that, in addition to the characteristics of the field an organisation belongs to, the internal characteristics of an individual organisation also influence its response to changes in the institutional environment. They look at four characteristics which influence the dynamics of an organisation: interests, values, power dependencies and capacity for action. Groups within an organisation may have different interests and different patterns of value commitments. If there are dissatisfied groups because they are not able to translate their interests into the distribution of scarce organisational resources, and if these groups realise that this unfavourable situation is caused by the template-in-use, they will try to change the existing template. Their success will depend on the power dependencies within the organisation and the capacity for action; *i.e.* their ability to manage the transition process from one template to another. Greenwood & Hinings see power dependencies and capacity for action as the enablers of radical change. If changes occur, the change will be radical, as dissatisfied and powerful groups strive for a new template. Greenwood & Hinings assume that the change processes will be evolutionary when other groups within the organisation are committed to the

template-in-use. The pace of the change processes will be revolutionary when all groups are opposed to the template-in-use.

At the Dutch Railways all the organisational units have to go through the change processes. No group within the company can escape this change whatever its power and interests. The only possibility is to try to slow down the pace of the change processes in order to make them more evolutionary instead of revolutionary. Even after their privatisation the Dutch Railways still attract lot of attention from politicians, as before the change they used to approve capital investment and pricing decisions, as well as from the public who are the users of their services. Important decisions and bad service quality are front page news. So, it is not possible to make superficial changes in order to legitimate themselves to the institutional environment without making real changes inside the organisation. But to make real changes requires the organisation to have the ability to realise them. The Dutch Railways has a long tradition as a public company in which the trade unions have a strong position. Changing individual perceptions, cognitions and preferences stemming from such a long tradition is a difficult task. In performing this task the management have to be aware of the institutionalised way of thinking and doing of the various groups in their company.

Greenwood & Hinings (1996) described the external and internal factors that influence the decision to make a radical change and the pace of this change. Their model shows the interplay of external and internal factors leading individual organisations to adopt or discard new templates for organising. They do not describe in-depth the processes along which the radical change takes place, nor do they discuss the means and instruments which are used in implementing the radical change. As we are interested in the role of accounting practices in radical change processes, we emphasise a processual perspective in this study. Moreover, we assume that not only the accounting practices as such will support the change processes but that also the processes of adopting and developing accounting practices will shape them. Hopwood (1987) argues '[a]ccounting is in the process of being seen as an organisational practice in motion, the changes and consequences of which are dependent on its intertwining with other approaches to the creation of a manageable organisational regime' (p. 214). He concludes that 'accounting, by intersecting with other organisational processes and practices, influences the patterns of organisational visibility, significance, structure and action' (p. 225).

A more in-depth discussion of how organisations adopt and develop accounting practices is given by Abrahamson (1991; 1996) and Briers & Chua (1999). These authors also take an institutional perspective, in that they assume that external and internal institutional pressures influence decision-making within organisations. Abrahamson asserts that external institutional pressures will hardly play any role in the adoption decision, if organisations do not face uncertainty. If organisations know

their goals and are able to assess the efficiency of accounting practices, they will adopt those accounting practices which enable them to attain their goals in an efficient way. They will search for new practices, if, due to external and internal developments, organisational performance gaps occur. This efficient-choice perspective, which assumes that organisations can make a rational choice, is the most dominant perspective in the innovation diffusion literature.

Briers & Chua (1999) are of the opinion that accounting changes will always cause uncertainty: 'accounting changes are highly fluid, precarious and unpredictable' (p. 29). This conclusion is in line with the findings by Hopwood (1987) and Bhimani (1993), who argue that accounting change is determined by circumstance and by multiple and even conflicting possibilities. Abrahamson assumes that, under conditions of uncertainty, organisations imitate other organisations. In such cases, the behaviour in adoption decisions can be characterised as copycat behaviour. Imitated organisations can be of the fashion-setting type, such as consulting organisations, business schools, business mass media etc., or can belong to the same group. This latter form of imitation focuses partly on arguments of social interactions due to which organisations try to legitimate themselves by adopting emergent norms within their group (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Zucker, 1977).

Briers & Chua (1999) argue that the training and experience of individuals plays a central role in the processes of adopting and developing accounting practices. The individuals involved in the change processes can come from both inside and outside the organisation. They stress the role of actor networks of internal/local occupational groups and external/cosmopolitan knowledge experts, who mutually influence and reinforce each other in making changes. Cosmopolitans are global actors with an orientation across spatial and cultural boundaries and with global expertise. Consultants of internationally operating consulting organisations with access to knowledge and technologies originating at different places and in different local circumstances are examples of cosmopolitan actors. Together with their standardised packages of accounting systems, software, etc. they are able to create 'hard facts' by which the local actors gain faith in new accounting practices and believe that these practices promise a better future. Internal occupational groups struggling for ascendancy by means of superior knowledge of the business in order to gain professional control and legitimacy influence the path to a better future. They do this by cooperating with cosmopolitan networks and by making use of the standardised technologies developed by these networks. Both local and cosmopolitan actors try to strengthen the network in order to strengthen their interests.

What Briers & Chua described are processes of learning by doing, of searching for new coalitions of individuals, of using rhetoric, of redefining the problem, and of influencing priority setting. Their fieldwork showed that in advance there is no detailed plan of the changes to be made and the consequences of actions taken are

only becoming clear in the course of time. This means that change processes cannot be planned comprehensively. They are made in a step-by-step way, where the outcome of actions forms the input for new actions and going back on previous decisions will be required. Burns & Scapens (2000) argue that change processes are path dependent even when the change is radical, because they are, to some extent, influenced by existing routines and the established context of the organisation.

Burns & Scapens (2000) stress the role of taken-for-granted rules and routines for change processes. They argue that individuals within organisations act according to habits and generally accepted rules of behaviour. By repeatedly following rules behaviour may become programmatic and so, routines may emerge. Organisational changes which require individuals within the organisation to accept new rules and routines are difficult to realise, as individuals are not explicitly aware of the rules and routines which underpin their way of acting and behaving. If (groups of) individuals have enough power within the organisation, they can change the existing rules and routines. Studying processes of accounting change in a particular case Burns (2000) found that power over resources, decision making and perceptions turned out to be insufficient for realising change as long as the existing taken-for-granted assumptions and beliefs have not been changed. The widely accepted rules and routines form an inherent feature of the management control process. Thus, a need to change the existing rules and routines implies a change of the existing management control process.

The Dutch Railways were forced to change their template-in-use. Some organisations have the legitimate power to dictate which template and/or administrative technologies should be adopted. Governmental bodies, trade unions and professional associations are examples of organisations that have this power (Abrahamson, 1996). Although the Dutch Railways were forced to make a radical change, the management themselves were able to choose the means and techniques with which to make such a change. Moreover, they were able to follow their ideas of how a private company should be structured and should decide and act.

Taking the viewpoint that accounting has to be studied in the process of becoming, this study will concentrate on how the Dutch Railways have adopted and developed accounting practices together with other organisational practices. As pointed out earlier radical change processes influence the position of an organisation in its environment. This means that an organisation which goes through radical change processes is faced with discussions about its boundaries: which activities should it perform itself and which transactional relations should it set up with other organisations and, if so, with which organisations? Radical change processes will also influence the internal organisation of the activities and the positioning of organisational units. In the literature much attention has been paid to these issues of governance structure. Transaction cost economics has tried to build a theoretical

framework for decisions concerning organisational boundaries. This framework (Williamson, 1975, 1985) distinguishes three critical transaction characteristics (frequency, uncertainty and asset specificity), the degree of which influences the choice of governmental arrangements. The more uncertainty and the more asset specificity, given frequent transactions, the higher the transaction costs in the case of market transactions. Once commitments have been made with an independent party hold-up problems can arise as that party will acquire an increasingly monopolistic position. Due to uncertainty comprehensive contracting is impossible and due to the specific investments discontinuing the relation will be costly. Therefore, bringing these transactions within the hierarchy has transaction cost advantages.

Transaction cost reasoning can also be used for the internal organisation of activities within a hierarchy. Various studies (see *e.g.* Eccles, 1985; Spicer, 1988; Van der Meer-Kooistra, 1994; Colbert & Spicer, 1995) show that within the hierarchy different governance structures can be set up for the internal transactions. These structures could have bureaucratic characteristics, being grounded in specified rules, standards, orders and a system of surveillance, evaluation and direction. It is also possible to introduce more market characteristics within the company. Structures, within which more or less independent business units operate which are allowed to start transactional relations within the company but also with external parties, give these units the authority to decide themselves on the transaction parties and on the transaction terms. Transaction cost arguments can partly explain such differences in governance structures within the hierarchy. Other arguments are based on the strategic importance of the transactions (Colbert & Spicer, 1995), task complexity and the influence of information asymmetry between the internal transactional parties and the central management (Van der Meer-Kooistra, 1994). According to Van der Meer-Kooistra, the interconnection between the co-ordination of internal transactions and the other management accounting systems, such as performance measurement and evaluation systems and rewarding systems, also influences the governance structure of internal transactions.

Moreover, the organisational and social embeddedness of the internal transactions matters when deciding on how to co-ordinate them. Sako (1992) and Holmström & Roberts (1998) also emphasise the importance of transactional embeddedness. They observe that ever more internal transactions are executed through the market, even when transaction cost arguments are in favour of governing them through the hierarchy. According to Holmström & Roberts (1998) there is 'a trend today toward disintegration, outsourcing, contracting out, and dealing through the market rather than bringing everything under the umbrella of the organization' (p. 80). They conclude that there are evidently other arguments than the transaction cost ones that also influence the governance structure decision. They argue that interfirm relations exist due to the benefits both parties can derive from transactions which

have a long-term and repeated nature. Current behaviour is disciplined by the long-term perspective of continuing transactions which will be a source of future rewards. Continuing interaction strengthens trust between the parties. The network approach (see *e.g.* Johanson & Mattson, 1987; Håkansson & Johanson, 1988; Easton, 1989) sees trust as an important variable for the explanation of the origin and growth of networks. Other researchers (Sako, 1992; Zaheer & Venkatraman, 1995; Chiles & McMackin, 1996; Nooteboom, Berger & Noorderhaven, 1997; Van der Meer-Kooistra & Vosselman, 2000) also assert that trust plays a role in co-operation, and that co-operation is not only a matter of coercion and incentives as argued by transaction cost reasoning. Granovetter (1985) claims that there is a significant social component in exchange relations. The social embeddedness of transactions has important trust creating value.

As indicated above, the governance structure discussion concerns both the organisational boundary and the positioning of organisational units within the organisation and their positioning towards the external market. These positioning decisions influence the organisational context in which accounting practices have to operate and, thus, they will influence the choice of accounting practices and their functioning. Shank & Govindarajan (1993) argue that organisations with a centralised structure partly use other accounting practices than those with a decentralised structure, and, if using the same practices, they use them differently (*e.g.* tight versus loose budget targets).

The theoretical ideas about change processes in organisations discussed above differ in various respects. First, they look at different phases of the change process. Greenwood & Hinings (1996) study the change process as a whole and are interested in its character. Abrahamson (1991; 1996) focuses on adoption processes, whereas Briers & Chua (1999) take a longitudinal perspective and study processes of both adoption, implementation and usage of new accounting practices. Transaction cost reasoning does not look at change processes but describes the most efficient status quo situation. Second, there is a different view on the factors that influence change processes. Greenwood & Hinings argue that both external and internal factors play a role, while Burns & Scapens (2000) focus on processes within organisations. Briers & Chua look at the interplay of knowledge and experience of internal and external actors. Transaction cost reasoning uses both external and internal factors in determining the governance structure with the lowest transaction costs. Third, the change concepts differ in their assumptions which underlie decision-making processes. Transaction cost reasoning starts from the view that there is one decision-maker who makes a deliberate choice. S/he decides purposely and weighs the pros and cons of alternative actions by looking at their consequences. The decision-maker does not face cognitive constraints and makes optimal decisions. The other concepts take another view, namely that decision-makers are bounded by both cognitive and

institutional constraints (see also Roberts & Greenwood, 1997). In this view decisions and actions are largely influenced by standard patterns of behaviour and much less by deliberate choice. March & Simon (1993, p. 8) speak of two different logics of action: a ‘logic of consequences’, which relates to the first view on decision-making, and a ‘logic of appropriateness’, which relates to the second view. In the second view the reaction to changing circumstances is determined primarily by routines. These routines can be based on institutional pressures. Individuals can learn and are able to change their routines. Learning processes occur gradually and have the character of incremental deviations. Learning is an embedded process that is coupled to past and present experiences and routines. Both learning and change are influenced by existing organisational capabilities and procedures.

Our study takes a longitudinal perspective and will look at all the phases change processes go through. Further, it starts from the assumption that both external and internal factors matter. Therefore, it will focus on the alignment between external circumstances and pressures and internal capabilities, and it will try to understand how accounting practices are used in these alignment processes and influence the outcome of these processes. Moreover, we assume that individuals are constrained in their decision-making due to cognitive limitations and institutional pressures. This implies that radical changes cannot be comprehensively planned beforehand, but that decision-makers will make decisions step-by-step enabling them to learn from earlier decisions and their effects. So, radical changes cannot be made in isolation from the past and need continuous decision-making in the course of time.

We will use the external and internal factors mentioned in the change concepts described above as a starting point in the investigation of the radical change processes at the Dutch Railways. In Figure 1 we give an overview of these factors.

Figure 1 Overview of factors influencing change processes

<i>External influencing factors</i>	<i>Internal influencing factors</i>
Institutional pressures (<i>e.g.</i> organisational field, and fashion-setting organisations)	Norms and values
Social embeddedness	Rules and routines
Global actors and expertise	Power dependencies
Standardised technologies	Capacity for action
Uncertainty	Asset specificity
	Information asymmetry
	Task complexity

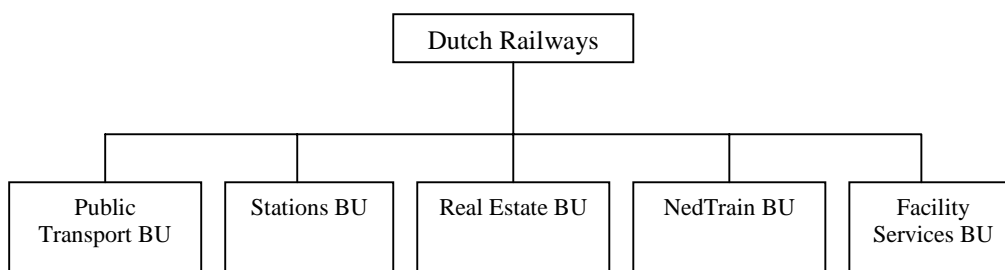
3. Research method and description of the research object

The research aim is to study the processes of developing accounting practices and their contribution to the transformation of the Dutch Railways into a private company. In studying these processes we will use the change concepts, as discussed in section 2. This allows investigating the ability of these concepts to understand the complexity of radical change processes. Moreover, using the findings of the case research we will try to construct a change framework.

Two governmental decisions influenced the position and functioning of the Dutch Railways radically. First, the decision by the Dutch government to privatise the company, and second, the decision by the European Commission to divide the national railway companies in Europe into an operating part and an infrastructure part and to divide the financing of both parts. The aim of the European Commission is to stimulate competition between railway companies, which becomes possible when the operating activities are no longer related to the infrastructure ownership. The privatisation decision concerns the operating part of the Dutch Railways, whereas the infrastructure will remain government owned. The Dutch government decided in the first place that the operating activities of the Dutch Railways should be carried out independently of the government and that the company should operate as a private company. After having made the privatisation decision, the government made clear that they were planning to list the company at the stock exchange. Following the railway accidents in England in recent years, the cause of which has been attributed to the privatisation of British Rail, this idea has been under discussion again.

Figure 2 shows the present organisational structure of the operating activities of the Dutch Railways. At the end of 1999 the Goods Traffic business unit was taken over by Railion, a company that comprises the German Goods Traffic and the Dutch Goods Traffic.

Figure 2 Organisational Structure Dutch Railways



Public Transport runs the trains. Stations is responsible for running the railway stations with the shopping and restaurant areas. Facility Services runs all the buildings. NedTrain and Facility Services are internal service units.

The research has been carried out at NedTrain. NedTrain is a legally independent unit within the Dutch Railways which is responsible for its own results. Its activities comprise short-term maintenance and repair, long-term maintenance in the form of refurbishment or overhaul, and technical advice about the purchase of new rolling stock and refurbishment and overhaul of existing rolling stock. NedTrain has about 4000 employees, most of whom have an engineering background. Short-term maintenance and repair is carried out by the organisational unit Maintenance and Services, which is geographically divided into 4 regions and has nearly 3000 employees. The organisational unit Refurbishment and Overhaul, with about 1000 employees, is responsible for the long-term maintenance and carries out its activities in two overhaul locations. Technical advice is given by NedTrain Consulting, which organisational unit is located at the Dutch Railways headquarters and has about 200 employees.

In order to get an in-depth insight into the change processes at NedTrain we have studied company reports and other written material concerning this subject. Further, we have interviewed people involved in these change processes in different positions and performing their roles at different places. The interviews took place at the central level of NedTrain and at the organisational units Refurbishment and Overhaul and NedTrain Consulting. These units have different characteristics. Refurbishment and Overhaul is a production oriented unit with production processes and investments in machines and equipment. NedTrain Consulting's main resources are knowledge and the experience of its employees. NedTrain Consulting sells hours, whereas Refurbishment and Overhaul sells production capacity. The employees of NedTrain Consulting have a more extensive training and better qualifications than the

employees of Refurbishment and Overhaul. The interviews lasted between two to eight hours. We have interviewed some people several times, over a lengthy period. Figure 3 gives an overview of the positions of the people interviewed. The interviews were carried out in the period of October 1998 till February 2000. Taking such a long period offered the opportunity to study decision making processes during which opinions were changing due to new information and advancing insight into decision outcomes.

Figure 3 Positions of persons interviewed

Central level: management accountant (member of the management team); 3 interviews

Refurbishment and Overhaul: central manager (1 interview) and central management accountant (1 interview)

NedTrain Consulting: central manager (1 interview) and central management accountant (4 interviews); two managers (1 interview each) and two management accountants of NedTrain Consulting units (2 interviews)

In the next two sections the findings of the research at NedTrain will be described. In section 4 we will start by investigating how the company has dealt with its positioning in the (rail) transport market as a consequence of privatisation. We will also look at the influences of its external positioning on the internal organisational structure, *i.e.* how should the various activities be organised and how should the newly established organisational units cope with each other and with the external parties. The new external and internal positioning determines the context within which accounting practices have to operate in order to support the change towards privatisation. In section 5 we will investigate the decision-making processes of adopting and implementing new accounting practices by means of which the NedTrain management thinks that they will be able to act as a private company.

4. External and internal positioning

The Dutch Railways' managements faced the enormous task of turning their public organisation into a private operating company. One of the first questions they asked was: What are the main characteristics of such a company? From the beginning the management focused on three characteristics: profitability, customers' wishes and market position. Another question was: How can we bring it about that people

throughout the company become aware of these three characteristics and make them prominent in their acting and decision-making? The management was convinced that an important step towards such a change in mindset was a change in the organisational structure. This change would alter the positioning of the company including its various organisational units in the market, and moreover, the positioning of the organisational units within the company. In order to understand the decisions concerning the external and internal positioning and their significance for the activities throughout the company, we start by describing the organisational context where the Dutch Railways including NedTrain started from.

As a public company the Dutch Railways had a monopoly position in the Dutch market. Due to this the Dutch government was the most important stakeholder (and also the only shareholder). The company had to take into account the political wishes of the government. Moreover, the company had to pay attention to its customers: the train passengers and the businesses demanding transport of goods. The Dutch Railways had to deliver specific products at costs agreed in advance with the Dutch government. The government decided on the quantity of the products and on the tariffs for public transport and goods traffic. The Dutch Railways focused on the technological ability to deliver the required products. The only constraints were the yearly cost budgets. Technology and safety were given most attention. The focus of the company was largely internally oriented. Marketing hardly played a role. The management's interest in the financial aspects remained restricted to negotiating with the government about the budget and ensuring expenditure did not exceed it. The Dutch Railways was a technologically oriented monopolist with managers and employees with a technological background. Efficiency was not a real issue because the Dutch Railways was the only supplier of public and goods transport in the Netherlands. The Dutch Railways was a bureaucratic, centralistic and functionally designed organisation.

This situation also holds for the internal service department NedTrain. NedTrain used to deliver its services only internally. NedTrain was the owner of the rolling stock. Its tasks were maintaining the technological performance of existing rolling stock through regular inspection and repair, and through overhaul work and conversion in the long-term, and buying new rolling stock. NedTrain decided how the regular maintenance, overhaul and conversion should take place. The units which had to take care of public transport and goods traffic had only limited influence on the maintenance of the rolling stock. NedTrain was a technologically driven unit. NedTrain was a cost centre charged with keeping costs within the cost budget. The only function of the financial administration was cost budget control. Profits and results were not recorded and there were no records with which financial results could be related to operational activities. The basic records were not there: NedTrain had no assets and debtor accounts nor a profit and loss account. Most of the attention was

focused on the number of technical failures per million kilometres and the availability of rolling stock. It was also important that critical overhaul terms should not be exceeded.

The Dutch Railways' central management decided to introduce a business unit structure (see Figure 2). The business units were made responsible for their own profit and had to deal with their own customers, whether internal or external. The reason why the Dutch Railways' management decided to make the organisational units more independent was twofold. First, their view was this would stimulate the units' management to pay in particular attention to their profitability, their customers' wishes and their market position. Second, they were of the opinion that confronting the units with more market competition would enhance the effectiveness and efficiency of their operations (necessary conditions for being profitable) and would make the customers, whether external or internal, more visible and perceptible (necessary conditions for satisfying customers). Now the financial results count and by introducing more market pressures within the company the business units are forced to be aware of these results. In addition, there was the urgent need to decrease the high budget overruns in the early nineties. The business units, including NedTrain, have to prove to the central management and also to the Dutch government that they are able to compete with other market parties and to react to customers' wishes. The thesis that 'more market is better', is the prevailing idea both of the Dutch government (that is why it decided to privatise the Dutch Railways) and of the central management of the Dutch Railways. The new organisational structure is a result of this thesis. The company did not carry out any investigation into the characteristics of the relations between the business units nor did it study the question whether this structure would contribute to the aims of being profitable and satisfying customers. So, we can conclude that this decision can be characterised as copycat behaviour. The Dutch Railways' central management followed the prevailing ideas in both the private and public sector. Nowadays, many companies have a business unit structure.

The consequences of the business unit structure for NedTrain were that it was held responsible for its own profit, which implied that it had to pay attention to both its costs *and* its revenues, and that the business units Public Transport and Goods Traffic became the owners of the rolling stock. These units are now the customers of NedTrain and negotiate with NedTrain about the required performance, time of delivery, the costs, etc. NedTrain has to make a trade-off between the costs of the technical performance and the price the customers are willing to pay. Until 2001 internal buying of maintenance has been guaranteed to some extent. From that date on Public Transport has been allowed to buy all the maintenance services, overhaul and conversion and technical advice about buying new rolling stock on the market. This

influences the position of NedTrain within the Dutch Railways as well as its position in the market.

In response to the change in the Dutch Railways' organisational structure the NedTrain management team¹ decided to copy this structure into their own organisation. They distinguished three business units which were made responsible for their own results. These units are: Maintenance and Services, Refurbishment and Overhaul, and NedTrain Consulting (see for a description of their activities section 3). The NedTrain management was of the opinion that this structure would stimulate the units' management awareness of both their costs and revenues and their customers.

After this initial decision the discussion about the position of the three NedTrain business units and their transactional relations with, in particular, the most important internal customer Public Transport has started all over again. The NedTrain management hold the view that the decision to make all the business units more independent, both within the Dutch Railways and within NedTrain, was a good decision to start with. According to them, this has led to business units which are now aware of their costs and revenues and take the wishes of their customers into account. Nevertheless, we observed that the positioning discussion is a continuing one, for three reasons.

The first reason can be indicated as the learning reason. The company's managements, including the NedTrain management, had no experience with a business unit structure. Moreover, by introducing this structure without an investigation of its effects they were unable to foresee all its consequences. In the course of time the disadvantages of operating apart from each other have become more visible. An example of a disadvantage is that the customer Public Transport has to cope with the sales departments of various NedTrain units within one project, which is not very efficient. Therefore, the NedTrain management have decided to combine the sales departments into a central department.

The second reason can be traced back to institutional pressures, in particular governmental regulations, both national and European. Due to European regulations aimed at opening up the national rail transport markets to international competition, national governments have, in response to these regulations, taken decisions in order to enable competition in their national markets. The Dutch government decided to divide the Dutch Railways into an operating part and an infrastructure part. This latter part has maintained its public structure. The consequence of this decision for NedTrain was that the services they deliver to this infrastructure unit changed from internal services to external ones. Due to this the relations with this customer have

¹ The NedTrain management team consists of the central management, the management of the NedTrain business units and the central management accountant. Henceforth, NedTrain management will stand for NedTrain management team.

changed. Moreover, the Dutch government decided that the Dutch Railways should focus its activities on the core railroad network by opening up the regional railroad lines to independent railroad companies by means of public tenders. The running of the core railroad network was awarded to the Dutch Railways for ten years, which is a relatively short period in comparison to the lifetime of the rolling stock (about thirty years). This had as a consequence that the, formerly, internal services NedTrain delivered to the regional railroad lines became external services with the new railroad companies as its customers. Due to these decisions the number of services NedTrain delivers internally has decreased. Therefore, developing its external relations and being able to act in a competitive way is of great importance to NedTrain.

The third reason is market developments. As a private company the Dutch Railways have to compete in the transport market. NedTrain is particularly confronted with the activities of four big companies building rolling stock. These companies are in the process of acquiring rolling stock maintenance companies. Their strategy is that they not only can offer new rolling stock but that they will also be able to sell all the maintenance required during the lifetime of the rolling stock. This development threatens the position of the Dutch Railways vis-à-vis the rolling stock builders and, in particular, the position of NedTrain in the market. The current opinion within the Dutch Railways is that NedTrain is an important unit which strengthens the position of the whole company in the market. They think that being able to offer a complete package of public transport services including technical maintenance, overhaul and technical advice determines the competitive value of the company. Another development was the take-over of the business unit Goods Traffic by the independent company Railion, which had as a consequence that this former internal customer became an external market party.

The developments described above show that the rail transport market is in a state of flux. The Dutch Railways have to act within a very uncertain environment. This complicates the radical change processes, which as it is already cause uncertainty. It is no surprise that the managements cannot foresee all the consequences of their decisions and are trying to decrease uncertainty by both showing copycat behaviour and taking step by step decisions which enables them to acquire experience and to learn from former decisions. In the discussion about the boundaries of the NedTrain business units we also observed a policy of avoiding making far-reaching decisions. This policy prevents the company from taking decisions that would be regretted afterwards. Although there are arguments to outsource some activities, in particular long-term maintenance services delivered by the Refurbishment and Overhaul business unit, the NedTrain management has decided not to consider this for reasons of uncertainty. Moreover, they expect strong resistance by the trade unions because of huge employment consequences. This might lead to labour unrest and worsening of the work atmosphere for several years.

The short-term maintenance activities carried out by Maintenance and Service, and technical advice about the purchase of new rolling stock and the overhaul and refurbishment of existing rolling stock given by NedTrain Consulting, will not be outsourced. In order to execute these activities the company has made specific investments in physical assets, human knowledge, and maintenance locations throughout the country, along the railway tracks. Moreover, NedTrain has built up long-term experience with the Dutch rail infrastructure and the behaviour of the rolling stock with regard to this infrastructure. This knowledge is valuable when buying new rolling stock, because it is needed for determining its functional requirements and for assessing its life cycle costs. Further, they know the Dutch standards and regulations, which also influence the functional requirements of new rolling stock. This knowledge creates added value to the Dutch Railways. The relations between NedTrain and Public Transport have a long-term and repetitive character. Trustworthiness and knowing each other's process characteristics and problems are very important in this relationship. Another important aspect is that the NedTrain headquarters, the unit NedTrain Consulting and Public Transport, are located in the same building, which facilitates personnel contacts. That is why Public Transport has emphasised that they consider the relationship with NedTrain Consulting of strategic importance.

The arguments the company's managements use are efficiency-oriented arguments which can be traced back to transaction cost reasoning along with social notions of trust and personal relationships. Further, we observe that not-knowing future developments in the transport market influences to-day's decision-making. The decision-making can be characterised by avoiding making far-reaching decisions, no regret afterwards, and cherishing what one possesses. This implies that some important characteristics stemming from the template of a public company are still there and influence current decision-making. Although the company strives for efficient decision-making using arguments of profitability and satisfying customers, it is limited in doing so by institutional and cognitive constraints.

5. Developing accounting practices

The previous section has shown that, by becoming a private company, the Dutch Railways has transformed its framework for the accountability of the company as a whole, but also of the various organisational units. The company and the organisational units are now held accountable for their costs and revenues and for their customers, whether internal or external. As pointed out earlier the Dutch Railways' central management goals are being profitable, satisfying customers and being competitive. The NedTrain management have accepted these goals and aim at

introducing them into their organisation. Changing NedTrain into a profit and customer oriented business unit was an enormous step, as the prevailing orientation used to be a technical and internally directed one. The information system processed hardly any financial and commercial information and in the management board financial and commercial expertise was lacking. In order to confront the participants with another organisational reality which should include concepts such as return on investment, customer satisfaction, market competitiveness, service orientation, the NedTrain management had to construct a new language. The engineering oriented participants who used to focus on technical aspects, such as the number of technical failures per million kilometres and the availability of rolling stock, had to think and act in another way with a prominent role for profitability, customers' wishes and market developments.

Research has shown that accounting practices can promote a new organisational reality and introduce a new language (see *e.g.* Dent, 1991; Hopwood, 1987; Miller and O'Leary, 1990; Ogden, 1995). These practices can shape the behaviour of the company's participants because they can actively constitute the critical issues, purposes and evaluation criteria which are important for realising the organisational goals. Ogden (1995) showed in the case of the privatisation of the British Water industry that considerable changes were made in the management information systems in order to construct new organisational purposes, to shape new images of the organisation and to reconsider its relationship with its environment. The Water industry developed new planning and control mechanisms and new cost information that gave a deeper insight into the costs of operational activities. Further, it introduced performance indicators and output measures in order to evaluate and compare achievements. It also spent a lot of effort on the training of management skills.

A similar development of accounting practices can be observed at the Dutch Railways. It was the task of the managements throughout the company to change the mindset of their people. Below we will discuss the actions taken by the NedTrain management in order to implement such a change and their effects on people's behaviour. Our investigation is focused on both the factors that influence the processes of accounting change and the character of the change processes. Further, we want to know who were involved in developing and implementing the new accounting practices and how these participants have dealt with institutional and cognitive constraints. We will also discuss whether the actions were successful (or not) in changing people's mindset. We will start with the changes made at the level of NedTrain as a whole, and then we will discuss the changes made at the level of the NedTrain business units.

5.1. Adopting new accounting practices at NedTrain

The change of NedTrain's organisational structure altered NedTrain's boundaries and those of the three NedTrain's business units. The aim was to create a new organisational reality in which both NedTrain and its three organisational units should take care of their costs and revenues and of their customers. This faced the NedTrain management with the following problems. Till then they had not discussed their positioning in the market and within the Dutch Railways. They expressed the need to develop a strategy including their internal and external positioning. The aims of being profitable and knowing one's customers and competitors required an insight into the financial results of each organisational unit, clear supplier-customer relations, and an insight into market developments. These requirements were new as in the past there were no pressures to pay attention to these issues. Information about financial and customer aspects were lacking as well as market information. So, there was an urgent need to set up a new management information system.

Another problem was that the NedTrain management needed a tool in order to manage the various organisational units in such a way that the people within the units would become aware of their financial and commercial performance. They used to be informed about their technical performance for which they were held responsible. The agenda was determined by technical issues. This had to change. In the decision-making financial and commercial consequences should be considered along with technical effects.

There was also the problem that the NedTrain management had no in-depth knowledge of and experience with financial and commercial aspects. Their appointment was based on technical knowledge and experience. Therefore, they expressed the need of adding financial and commercial expertise to their ranks. In addition, they realised that without any direct help from external experts they would not succeed. The management was not familiar with such radical change processes and adding new financial and commercial expertise to their ranks would take time. The management decided to hire a consultant with expertise in these fields. This consultant has contributed to a large extent to the change processes and has advised NedTrain about the adoption of new accounting practices. In the course of time new expertise has been added to the central management by the appointment of a financial and a commercial chief executive. Also in the management of the NedTrain business units managers from outside and with expertise in running private organisations have been appointed.

How to change the mindset of the NedTrain people? They should learn what it meant to have customers and to behave as a service provider. How could NedTrain be attractive to external and internal customers? How could they compete with their competitors? How could they make their service activities profitable? Also the

internal customers should learn how to behave as customers. The consultant advised to give priority to the introduction of new performance measures which would focus on profitability and customers' wishes. He recommended to introduce the concept of the balanced scorecard for measuring and managing the business units' performance. His idea was that this concept could be used for decreasing the technical dominance and putting financial and commercial issues high on the agenda. Moreover, it would change people's internal orientation into a more external orientation by taking customers, competitors and market developments into consideration. All in all, the concept of the balanced scorecard would support the new objectives, would create new visibilities and would change people's perspective on performance.

At the time of the decision to adopt the balanced scorecard, there was no clear vision on the management control structure to be developed for NedTrain. Nor was there a clear strategic vision on NedTrain's position in the market and on its position within the Dutch Railways. The management's first concern was that the engineering participants should be persuaded swiftly that technology costs money and that an external orientation is required. The adoption decision of the balanced scorecard was taken by the NedTrain management without investigating the costs of developing, implementing and using this instrument.

In order to implement the balanced scorecard various workshops were organised in which the concept of the balanced scorecard was explained to the central and business unit managers and management accountants. Next, in each organisational unit working-groups were set up for formulating critical success factors and performance indicators per perspective. The perspectives were not related to each other, so there was no question of an integrated approach. After a first choice made by the business unit manager, the central manager made the definitive decision on the critical success factors and performance indicators to be used per business unit. The central management accountants developed the lay-out of the reports and the information system supporting the reporting. Starting from 1995 NedTrain has been using the balanced scorecard concept.

The introduction of the concept was a process of muddling through. As said before, there were no strategy and clear objectives, nor did they have any experience with target setting, and there was a lack of financial and commercial information. The development of the balanced scorecard made clear that a discussion about strategy and objectives was needed, and gave an insight into the information that should be gathered. The development of a new information system went along with the development of the balanced scorecard. As the duration of the implementation process was rather tightly scheduled, it showed afterwards that a certain indistinctness in the performance indicators had crept in. There were problems with the character of some of them, with the uniformity of the concepts used and with the accessibility of the reports. Some important performance indicators were not there, such as indicators

of the aspects of customer satisfaction, internal processes and innovation. These problems have been addressed in the course of time. It was very difficult to use performance targets, as they did not know their objectives. Therefore, attention was particularly focused on measuring performance without paying attention to desirability and targets. At the beginning, the performance indicators were strongly focused on the financial aspects. After the appointment of a commercial director on the central management board more attention was paid to the customer and the market. By means of a so called customer dashboard for the various markets a picture of the relations with the customers has been drawn up.

The NedTrain management are of the opinion that the balanced scorecard has functioned as a means to get a clearer picture of the effectiveness and efficiency of NedTrain's activities and NedTrain's relations with its customers. It has backed up the discussion about NedTrain's strategic possibilities and strengths and weaknesses. By using the balanced scorecard as the monthly means of reporting by the business units managements to the central management, the agenda of the NedTrain management meeting is to a large extent determined by the scorecards. So, financial and commercial issues are now part of the language in addition to technical aspects. They are still working on a better understanding of their activities in competitive terms: what is their position in the market, what position do they strive for and how do they want to compete with the big rolling stock building companies?

What we observe is the introduction of an instrument which with the NedTrain management had no experience at all. The consultant strongly recommended its use based on his experience in other companies. The conditions for its introduction were minimal, because NedTrain did not know its strategy and objectives and lacked information². The instrument was used as a vehicle to change the mindset of the engineers. It should change their perspective on performance, as 'good' performance was no longer a synonym for using the best techniques, but should now be expressed in financial terms and in terms of customer satisfaction. The instrument has changed people's vocabulary as it has been used prominently in the monthly management meeting. The instrument had been developed in a step by step way along with the development of a new information system, the discussion about NedTrain's strategy and its internal and external positioning, and the appointment of new managers with financial and commercial expertise in the private sector. All these actions together have determined how the organisation and its people are acting nowadays, without having set up a detailed blueprint in advance of the way of acting.

² The developers of the balanced scorecard concept, Kaplan & Norton (1996), argue that these conditions should be fulfilled before starting with setting up a balanced scorecard.

5.2. Adopting new accounting practices at NedTrain Business Units

The introduction of new accounting practices at the central level was picked up by the business units, the managements of which developed new practices geared to their information needs and for managing their activities. The managements of the separate business units, who were held responsible for their units' results, decided to develop scorecards for their own units. The central scorecards by means of which they reported to NedTrain's central management were not considered to be effective for managing their own activities. They are too general and strongly financially focused. The business unit managements needed more in-depth information about both operational aspects of their activities and the relationships with their various customers. The business units also faced a lack of various types of information and, therefore, were also forced to develop a new information system. Below we will describe the processes of developing scorecards by the business units NedTrain Consulting (NTC) and Refurbishment and Overhaul (RO). We will focus on the internal factors which influenced these processes.

Business unit NedTrain Consulting

The business unit NTC distinguishes, apart from some supporting departments, four line departments: Marketing & Sales, Projects, Technique, and Research & Development. These line departments have to cooperate closely in advising NTC's customers. The R&D department is focused on applied research and does not carry out fundamental research. The management wanted an insight into their activities, to what extent these activities are able to satisfy their customers' wishes, the quality and pricing of their consultancy activities in comparison with their competitors, and the relation between their activities and the financial outcomes. In order to acquire this insight many people throughout NTC have spent a lot of time unravelling their internal processes and investigating which the critical success factors are of the various processes. On the basis of these analysis they developed a set of related performance indicators. These indicators are closely related to the processes, so that the individuals can understand them in terms of, and relate them to, their daily activities. Therefore, NTC decided to use performance indicators at two levels: first, the level of the department management level, and second, the sector level, *i.e.* the lowest level into which the departments' activities are subdivided. Later on, they decided to introduce a total quality model in which internal aspects, such as leadership, personnel and resource management, are distinguished, and which are not incorporated in the balanced scorecard. Every second year NTC measures customer satisfaction and carries out a benchmark with Dutch engineering consulting firms. NTC is now well informed about the characteristics of its various markets. The latest

step is that they are making a real effort to set up critical success factors for their R&D activities and to develop R&D performance indicators.

All these new practices have been set up without the support of external experts. All the NTC interviewees (see Figure 3) are satisfied with the commitment of the people throughout NTC in developing and using them. They argue that these practices have changed the mindset of all the people. Now, people weigh financial and commercial effects together with the technical ones. Afterwards it turned out that the balanced scorecard and the total quality model were well understood by the engineers. The interviewees attribute this to the fact that the employees are highly educated engineers who are used to thinking in an analytical way. They are able to survey their activities and to interpret them in abstract terms. Moreover, due to the fact that they are forced to look at new technological developments in order to be able to give technical advice of high quality, they have developed an externally oriented attitude. They have many contacts with parties outside NTC. The interviewees argue that NTC is characterised by an open atmosphere without strong hierarchical lines. The scorecards and the quality information are discussed regularly. This information is used for action oriented management and the individuals are committed to agreements made. The individuals know what is going on and there is a situation of shared responsibility. Their interests are the same and, moreover, because they have the same technical background their values and norms have much in common. All in all, the NTC management are very satisfied with their new accounting practices.

Business unit Refurbishment and Overhaul

At the beginning, the management of the business unit Refurbishment and Overhaul (RO) have shown resistance to using the balanced scorecard concept at the central level, because the effectiveness and efficiency of their activities should become more transparent. Due to this they felt that their autonomy could decrease and that their own activities could be questioned. It took time to make them accept the use of scorecards. The appointment of new managers from outside with expertise in running private companies has attributed to their acceptance. This has eventually led to the introduction of the balanced scorecard concept at RO.

RO is a production unit with high investments in production capacity (machines and equipment). RO used to have an internal orientation, although they are now trying hard to deliver their services to external parties. External sales have been varying over the past few years between 4 and 12%; the policy is to increase the external sales to 25% within five years. RO personnel has an engineering background, but, in comparison with NTC personnel, their training is more technically (practically) oriented. There is a strong tendency to do things as they have always been carried out. Before privatisation the relation with Public Transport, the most important internal customer, was very informal. Clear written agreements about the precise activities for

refurbishment or overhaul were not made. In many cases RO did more work than was planned and RO was not paid for the additional work due to inadequate agreements. Nowadays, the way refurbishment and overhaul projects are calculated is still inadequate. People are not able to specify all the activities in advance. This causes discussions afterwards with the customers and dissatisfied customers. RO is now accountable to the customers, whereas in the past RO determined working requirements itself. Customers' dissatisfaction occurs due to bad quality, overrunning delivery times, unclear functional and technical requirements, unclear starting date, etc.

Another development is that, whereas RO was until recently focused in particular on overhaul, now its activities are more and more becoming a combination of overhaul and refurbishment. Refurbishment demands new designs - for example a new design that leads to a substantial improvement in functionality of the rolling stock – which requires other expertise. RO has to learn how to plan the activities and calculate the prices of such orders adequately. Therefore, it is in RO's interest to acquire an insight into the operational processes and to set up operational performance indicators in order to increase operational performance throughout the business. Moreover, in order to receive orders from external parties RO must be competitive, and it knows that its cost level is too high in comparison with that of the big rolling stock builders.

As the existing managements had no experience with the problems discussed above RO hired an external consultant to support them in the change processes. Further, RO appointed a number of new managers. With this added expertise RO started a project focused on improvement of the management control system and the project management system at the beginning of 1998. The balanced scorecard concept and in particular the development of operational performance indicators formed the core of this project. Participants in the project were RO's central management team, the central management accountant, the middle management and the external consultants. After determining the critical operational processes they set up operational performance indicators and performance targets. They developed these figures for the various production departments and for the various levels within these departments.

They also developed a reporting system that gives information on operational performance. The reporting system has been set up along departmental lines and not along the project line. They are now trying to work out the project line. The scorecards are entirely focused on the internal production processes and on service quality. No attention has been paid to the customer perspective. Neither have the supporting departments been taken into consideration. The production departments discuss their most important operational performance figures once a week. The central management team discusses these figures monthly.

As argued by the interviewees (see Figure 3), till now the influence of the scorecards on the activities has been limited. The idea is to determine action on the basis of performance information. But it is very difficult to realise such an action focused attitude. It is in particular on the workfloor that the scorecards have not been used. Moreover, the distance between the central management team and the workfloor is very large, due to which the various management levels are not well geared to each other. That is the reason that only after an order has been completed, is the management able to conclude that the contract terms have not been met. Although a new management control system and project management system have been developed and implemented these systems function only partially. According to the interviewees, much more effort will be needed to make these systems operative.

5.3. Reflections

Our investigation of the change processes at NedTrain, in particular at the two business units, shows that internal factors, such as the nature of the activities, the knowledge and experience of the people, and the atmosphere between the various hierarchical lines, are very important in making a radical change. Such a change requires a change of the mindset of people. According to the interviewees, NTC has realised this, whereas RO has not. Greenwood & Hinings (1996) and Burns & Scapens (2000) stressed the importance of internal factors, such as values and norms, rules and routines, power dependencies and differences in interests. These factors are rather general. Our investigation makes it possible to be more specific, as we can compare change processes at two business units which are exerted to the same external pressure to make a radical change, and which have gone through the same change in organisational structure. We observe three important differences. First, differences in the nature of activities, and second, closely related to the first ones, differences in knowledge and experience of people. At NTC the engineers are involved in activities which require an externally oriented attitude as they have to follow new technological developments and have to cooperate closely with suppliers of new rolling stock. These activities require highly educated engineers. At RO the activities are internally oriented and require the use of standard technology. RO personnel is not used to deal with customers and to look at market and technological developments. Therefore, they have a standard engineering education. Third, the internal atmosphere. At NTC there is an open atmosphere between the various hierarchical levels. All people feel committed to what is going on at NTC and the contributions they can make to NTC's success. At RO there is a gap between the various management levels and the workfloor. The appointment of new managers have brought into the company new knowledge and expertise, but has not influenced this gap. The new accounting practices were developed without much involvement of

the workforce. Another aspect is that the personnel on the workforce is strongly organised which makes them powerful. The workforce is committed to the existing operational procedures and has no interest in making changes.

We can conclude that the radical changes NTC and RO had to go through were easier for NTC to make because the existing character of its internal factors had more in common with their required character. In fact, the change NTC had to make was less radical than the one RO had to realise.

6. Discussion: towards a comprehensive change framework

Now that we have discussed the radical change processes at the Dutch Railways in general and in-depth those at NedTrain, we can grasp the content and the character of these processes and their influencing factors. The aim of this analysis is to develop a comprehensive change framework.

Organisations do not exist in isolation, they are influenced by and influence their environment. In the case of the Dutch Railways the radical change processes were started by the institutional environment: the Dutch government together with European regulations and prevailing ideas about what best practices are. The Dutch Railways had no choice between 'do change' and 'do not change'. The Dutch government is a very powerful institution, which implies that real changes in the template-in-use had to be made. The Dutch Railways attract lots of attention from politicians and the public, so that they know that their actions will continually be scrutinised. Usually the source of radical changes will be found in the institutional environment: new technology, competitive pressures, or new ideas of powerful organisations. Innovative organisations will face internal sources of radical changes. The way a particular organisation reacts to an external or internal pressure to make a radical change will depend on both the strength of this pressure and the characteristics of this organisation and its activities.

If a particular organisation has no knowledge of and experience with the new template, it may be expected that it will use external expertise. As Greenwood & Hinings (1996) argue, organisations in mature organisational fields, which are strongly oriented to their own field, will face this lack of knowledge and experience. We observe such a situation at NedTrain. NTC did not use external expertise as they were already externally oriented and were more open to alternative organisational forms, whereas RO did not have this expertise. Although RO introduced new expertise from outside, it is still struggling with making the change. So, combining external and internal expertise is no guarantee that the mindset of the people throughout the organisation can be changed. Changing the mindset requires the creation of new visibilities, the use of another language, and a change in people's

perception of their performance. Powerful groups of people can show resistance, in particular when they are not convinced that their way of acting is counterproductive for the continuity of the organisation. Trade unions can back up these groups in their resistance, as we observe at RO.

The NedTrain case has illustrated that making a radical change including the mindset of people has required various means. In order to create another organisational reality the managements changed the organisational structure including the external and internal positioning, introduced new accounting practices, including new performance measurement systems and new information systems, and introduced new expertise from outside. These means have been used in close co-operation with each other. Therefore, their development and effects cannot be studied in isolation from each other. The development of new accounting practices has structured the strategic discussion and has made clear what information was lacking. Hopwood (1987) has pointed at the importance of studying accounting practices in their organisational context. He argues that by connecting the technical aspects of accounting practices to the organisational context it is possible to investigate the creative role these practices have on organisational functioning. The technique and functioning of accounting practices are intertwined with organisational life. Accounting practices can construct another organisational life and this other life influences accounting processes and their consequences. This means that the outcome of change processes influences the following change processes.

We have seen at NedTrain that individuals, both from inside and outside the organisation, play an essential role in these processes. Without their skilful behaviour (Nelson & Winter, 1982) change processes would not be possible. Change processes are interaction processes of organisational life, accounting practices, skilful behaviour of individuals and the institutional environment. Individuals are influenced in their acting and decision making by the institutional environment. At the Dutch Railways this starts with the cause of the radical change: the Dutch government is convinced that the Dutch Railways can more effectively perform their tasks as a private company. In changing the template-in-use the Dutch Railways managements have made various decisions strongly based on prevailing ideas. The introduction of the business unit structure and the adoption of the balanced scorecard concept are examples of this imitation behaviour. They have accepted these concepts without any investigation into their effectiveness beforehand. Consultants have had a strong influence on these decisions.

Individuals are also influenced by their existing way of thinking and acting. Even a 'busting loose from an existing orientation' (Greenwood & Hinings, p. 1024) has path dependency characteristics. No individual can act without reference to past behaviour and past routines. As Nelson & Winter (1982) argue without routinised

activities there will be a risk that operational knowledge would get lost, as 'organisations remember by doing' (p. 99).

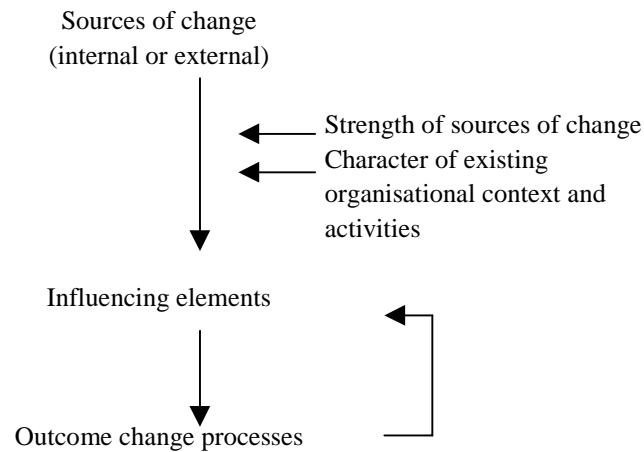
The NedTrain case has shown that radical change processes require involvement of all the participants on all levels. Creating new visibilities and another language, shifting perceptions on performance and influencing problem recognition and solution have to find their anchorage throughout the organisation. As long as the changes are not anchored throughout the organisation (as is the case at RO), groups of individuals will resist the required changes which will cause internal tensions and have harmful consequences.

The description of the change processes at NedTrain has made clear that in order to understand the changes made a processual view is required. Confronted with the new mission neither Dutch Railways nor NedTrain had a clear picture in advance of the actions and processes needed in order to realise the new template. The change processes had a learning by doing character. There was no comprehensive plan which included all the steps to be taken, because there was lack of information and shortage of knowledge and experience. In the course of time the organisation was confronted with the intended and unexpected effects of decisions and actions and, therefore, the following steps were influenced by learning about the consequences of previous actions. As Hopwood (1987) argues the new facts have to be 'laboriously created rather than merely revealed' (p. 216).

Due to the path dependency and learning by doing nature of radical change processes we can conclude that the pace of making radical changes has both revolutionary and evolutionary characteristics. Even when all the (groups of) individuals within an organisation are committed to the new template, as we have observed at NTC. Another finding is that, although the NedTrain business units NTC and RO are part of the same organisation, the change was less radical for NTC than for RO, in particular due to differences in the character of the internal factors.

Based on the above analysis of the change processes at the Dutch Railways we can develop a comprehensive change framework as is shown in Figure 4.

Figure 4Change framework



As argued above the sources of change usually will be found in the environment, but they can also come from inside. The consequences of the pressures from these sources will depend upon their strength and the characteristics of the particular organisation that has to go through the change. We have seen that various means are required to support the change processes. These means can be traced back to elements which can be found on the meta level in the form of ideas about best practices, templates of organising, general social expectations etc., in the availability of instruments (the content of the toolkit) which can be used in realising the changes, in the characteristics of the internal and external individuals involved in the change processes, and in the characteristics of the organisation, both the internal characteristics and those regarding its external positioning. Figure 5 gives an overview of these elements and their components. Both the development of these means and their functioning are closely interrelated. The effects of their functioning, *i.e.* the outcome of the change processes, have consequences for the organisational reality and the mindset of people. They change the way the organisation is functioning, its internal and external positioning and people's visibilities, vocabulary, perspective on activities and performance, and perception of problems and solutions. This changed organisational reality influences in its turn the following change processes and also the functioning of the means. Due to the fact that radical change processes are characterised by complexity and uncertainty the individuals involved are not able to oversee the changes and their consequences beforehand. Therefore, the processes have a step-by-

step and learning nature. Radical change processes cannot be comprehensively planned.

Figure 5 Influencing elements

Meta elements	Institutional pressures
	Prevailing ideas
Technical elements	Arguments (<i>e.g.</i> Transaction cost economics)
	Accounting practices
	Information systems
Individual elements	Skilful behaviour of internal and external participants
	Orientation
	Power of (groups of) individuals
	Costs/benefits
	Norms and values
Organisational elements	Routines
	Involvement of participants
	Organisational structure
	Organisational boundaries

The change framework includes all the phases change processes go through. It shows the processual nature of radical changes and the intertwinement of the influential elements. Moreover, it indicates that the influencing elements and the results of change processes interact with each other. The identification of the influential elements (Figure 5) does not follow the usual distinction between internal and external elements, which indicates the place from which they originate. We look at the nature of their source, whether internal or external. At NedTrain we have observed that the elements have often originated both internally and externally. So, the internal and external roots are often mixed up and cannot be separated. Looking at the nature of the sources deepens our understanding of the elements and their various manifestations. Further, the framework emphasises the learning by doing nature of change processes. The actual results of change processes, which can differ from the intended and expected results, influence the following change processes. The framework assumes that individuals who are involved in change processes are confronted with cognitive limitations and institutional pressures.

7. Concluding remarks

Change processes are complex processes in particular when they are of a radical nature. As argued by Hopwood (1987), radical change processes have to encourage the organisational participants to change their interpretive scheme for making sense of the organisational activities. This paper studies radical change processes and the role of accounting practices in these processes at the Dutch Railways. This company was forced to change its template-in-use (public company) into the template of a private company. Based on the research of the change processes at this company a comprehensive change framework has been developed. This framework is also underpinned by various theoretical change concepts. Most of these concepts take a partial view. In doing so in-depth studies of specific aspects of change processes are made possible, but there is a danger that the consequences of interactions with other change elements are wrongly overlooked. The intertwining of change elements, change processes and change influences are crucial in understanding change processes.

Further research on this complicated phenomenon should be focused in particular on radical change processes in private companies. Most of the cases described in the accounting literature are coming from the public sector that has been confronted with privatisation during the last decades (*e.g.* Dent, 1991; Ogden, 1995; 1997). It would be of interest to investigate whether radical change processes in the private sector differ from those in the public sector. It might also be recommended to investigate how organisations can prepare their people for changes in their perspectives and functioning, so that they, even in case of a 'busting loose' from the existing orientation, are able to accept such a change. Now that organisations are more often confronted with changes, having an insight into the conditions which create an attitude of accepting changes becomes ever more important.

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